METABOLISM
Clinical and Experimental

VOLUME XVII, 1968

HENRY M. STRATTON, INC.

NEW YORK and LONDON

EDITORIAL BOARD

EDITOR-IN-CHIEF

GARFIELD G. DUNCAN, *Philadelphia, Pa.*

CONSULTING EDITOR

SAMUEL SOSKIN, *Beverly Hills, Calif.*

ASSOCIATE EDITORS

SAMUEL P. ASPER, JR., *Baltimore, Md.*
EDWIN B. ASTWOOD, *Boston, Mass.*
FREDERIC C. BARTTER, *Bethesda, Md.*
JOHN E. BETHUNE, *Los Angeles, Calif.*
EDWARD G. BIGLIERI, *San Francisco, Calif.*
DAVID H. BLANKENHORN, *Los Angeles, Calif.*
WALTER LYON BLOOM, *Atlanta, Ga.*
WALTER M. BORTZ, *Philadelphia, Pa.*
JOHN F. BROCK, *Cape Town, South Africa*
RONALD V. CHRISTIE, *Montreal, Canada*
HADLEY L. CONN, JR., *Philadelphia, Pa.*
T. S. DANOWSKI, *Pittsburgh, Pa.*
MICHEL DE VISSCHER, *Louvain, Belgium*
PAUL D. DOOLAN, *Bethesda, Md.*
STEFAN S. FAJANS, *Ann Arbor, Mich.*
JAMES B. FIELD, *Pittsburgh, Pa.*
RICHARD A. FIELD, *Philadelphia, Pa.*
GEORGE ROSS FISHER, III, *Philadelphia, Pa.*
PETER H. FORSHAM, *San Francisco, Calif.*
ROBERT J. GILL, *Philadelphia, Pa.*
MARTIN G. GOLDNER, *New York, N. Y.*
SAMUEL GURIN, *Philadelphia, Pa.*
GRANT GWINUP, *Orange, Calif.*
HAROLD A. HARPER, *San Francisco, Calif.*
RICHARD J. HAVEL, *San Francisco, Calif.*
W. PAUL HAVENS, JR., *Philadelphia, Pa.*
BERNARDO A. HOUSSAY, *Buenos Aires, Argentina*
DAVID YI-YUNG HSIA, *Chicago, Ill.*
ROBERT L. JACKSON, *Columbia, Mo.*
WILLIAM K. JENSON, *Boston, Mass.*
CHARLES L. JOINER, *London, England*
ANCEL KEYS, *Minneapolis, Minn.*
LEO P. KRALL, *Boston, Mass.*
BERNARD R. LANDAU, *Rahway, N. J.*
RACHMIEL LEVINE, *New York, N. Y.*
DONALD B. MARTIN, *Boston, Mass.*
E. PERRY MCCULLAGH, *Cleveland, Ohio*
THOMAS J. MERIMEE, *Boston, Mass.*
FRANCIS D. MOORE, *Boston, Mass.*
JOHN A. MOORHOUSE, *Winnipeg, Canada*
CAMPBELL MOSES, *New York, N. Y.*
DON H. NELSON, *Salt Lake City, Utah*
HERBERT POLLACK, *Arlington, Va.*
LAWRENCE POWER, *Detroit, Mich.*
A. RAPOPORT, *Toronto, Canada*
ALBERT E. RENOLD, *Geneva, Switzerland*
DAVID J. RITCHIE, *Philadelphia, Pa.*
DAVID R. ROVNER, *Ann Arbor, Mich.*
LEO T. SAMUELS, *Salt Lake City, Utah*
HENRY S. SCHUTTA, *Philadelphia, Pa.*
RICHARD T. SMITH, *West Point, Pa.*
I. SNAPPER, *Brooklyn, N. Y.*
LOUIS J. SOFFER, *New York, N. Y.*
JURGEN STEINKE, *Boston, Mass.*
DE WITT STETTEN, JR., *New Brunswick, N. J.*
JAMES M. STRANG, *Pittsburgh, Pa.*
WILLIAM A. TISDALE, *Burlington, Vt.*
JEROME WALDRON, *Philadelphia, Pa.*
C. J. WATSON, *Minneapolis, Minn.*
C. D. WEST, *Salt Lake City, Utah*
KELLY M. WEST, *Oklahoma City, Okla.*
ROBERT H. WILLIAMS, *Seattle, Wash.*
MICHAEL G. WOHL, *Philadelphia, Pa.*
PETER D. S. WOOD, *Oakland, Calif.*
LESLIE ZIEVE, *Minneapolis, Minn.*

VOL. XVII, 1968

METABOLISM

Clinical and Experimental

CONTENTS

No. 1 (January)

Serum Human Growth Hormone (HGH) Response to IV Glucose: Diagnosis of Acromegaly in Females and Males
Gunther Boden, J. Stuart Soeldner, Jurgen Steinke and George W. Thorn 1

Changes in Fluid Compartments, Renal Hemodynamics, Plasma Renin and Aldosterone Secretion Induced by Low Sodium Intake
Juan C. Romero, Roberto J. Staneloni, Maria Dufau, Roberto Dohmen, Alberto Binia, Bernard Kliman and Juan C. Fasciolo 10

Renal Tubular Transport of Hydroxyproline Peptides: Evidence for Reabsorption and Secretion
Frederick L. Benoit and Raymond H. Watten 20

Effects of Exogenous Adenosine 3′,5′-Monophosphate in Man. II. Glucose, Nonesterified Fatty Acid and Cortisol Responses . . *Robert A. Levine* 34

Intravenous Proline Tolerance in Osteogenesis Imperfecta
George K. Summer and William C. Patton 46

The Effect of Normal and Diabetic Pregnancies on Growth Hormone Responses to Hypoglycemia ..... *Daniel H. Mintz, Richard Stock, Joseph L. Finster and Andrew L. Taylor* 54

Oxidation of Plasma FFA in Lean and Obese Humans
Bela Issekutz, Jr., Pavle Paul, Harvey I. Miller and Walter M. Bortz 62

Effect of Growth Hormone on Carbohydrate Metabolism in Hypopituitary Dwarfs .....*Hugo Gold, Samuel Spector, Naguib A. Samaan and Olof H. Pearson* 74

The Effect of Mild Exercise on Glucose Uptake in Human Forearm Tissues in the Fasting State and After Oral Glucose Administration
M. J. Whichelow, W. J. H. Butterfield, M. E. Abrams, G. Sterky and C. J. Garratt 84

No. 2 (February)

Indices During Administration of T_4 and T_3 to Euthyroid Adults
Richard A. Alley, Thaddeus S. Danowski, Terrence J. L. Robbins, Thomas F. Weir, George Sabeh and Campbell Moses 97
Preliminary Report: Problems in the Determination of Serum Fucose in Diabetes Mellitus ..... *Donald E. McMillan, Jean H. Sauer and Peter H. Forsham* 105
Diabetes Mellitus and Primary Hypothyroidism
Arthur Hecht and Herbert Gershberg 108
Effects of Oral Chromium Supplementation on the Abnormal Glucose Tolerance of Elderly Subjects ..... *Robert A. Levine, David H. P. Streeten and Richard J. Doisy* 114
The Effect of Mannoheptulose on the Phosphorylation of Glucose and the Secretion of Insulin by Islets of Langerhans ..... *Willy J. Malaisse, Michael A. Lea and Francine Malaisse-Lagae* 126
Changes in Blood Volume During Absolute Fasting with and without Sodium Chloride Administration ..... *Henrik Maagøe* 133
Physiological Variations of Insulin Output in Urine. *Juan Jose Gagliardino* 139
A Technic for Continuous In Vivo Sampling of Blood Through an 18-gauge Channel ..... *J. B. R. McKendry* 148
Oxidation of Sugars, Other than Glucose, by Isolated Mammalian Islets of Langerhans ..... *R. J. Jarrett and H. Keen* 155
Effect of Pyruvate and Other Substrates on Urea Synthesis in Rat Liver Slices ..... *Robert Metz, James M. Salter and Gunther Brunet* 158
Relative Efficacy of Lactate Isomers in the Repair of Acidosis in Cats
Myron Brin, William H. Bergstrom and Donald Walenga 168
Effects of Nutritional Status and the Pituitary on the Acute Plasma Free Fatty Acid and Glucose Responses of Rats to Growth Hormone Administration ..... *Norbert I. Swislocki* 174
Effect of a Gonadotropin Inhibiting Substance on the Ovarian Histology in Mice ..... *Minoru Ota, Adrian Dronkert and Allen H. Gates* 181
An Effect In Vivo of Clomiphene on the Rate of Conversion of Androstenedione-C^{14} to Estrone-C^{14} and Estradiol-C^{14} by the Canine Ovary
J. A. Engels, R. L. Friedlander and K. B. Eik-Nes 189

No. 3 (March)

Gastric Neuropathy in Diabetes Mellitus: Clinical and Radiologic Observations ..... *Barry R. Zitomer, Herbert F. Gramm and George P. Kozak* 199
Effect of Insulin on the Transport and the Analgesic Action of Sodium Salicylates ..... *Konstanty Wisniewski and Maciej Zarebski* 212
The Comparative Clinical Effectiveness of Tolbutamide and Acetohexamide. *Theodore G. Duncan, J. Bruce Smith and Garfield G. Duncan* 218
Review: Studies on the Mechanism of Action of Thyroid-Stimulating Hormone ..... *James B. Field* 226

The Effect of Insulin on the Metabolism of Lipids and on Urea Formation by the Perfused Rat Liver ..... *J. C. Penhos, C. H. Wu, A. Lemberg, J. Daunas, B. Brodoff, A. Sodero and R. Levine* 246

Familial Thyroxine-binding Globulin Deficiency *Elihu Kraemer and John G. Wiswell* 260

Hypothalamic-Pituitary-Adrenal Function in Thyroid Disorders: Effects of Methopyrapone Infusion on Plasma Corticosteroids *Paul Cushman, Jr.* 263

Diiodotyrosine Dehalogenating Activity in Thyroid Cold Nodules *Giovanni B. Salabè, Rafael Grasso, E. Ceccarini and Lidio Baschieri* 271

The Antigenic Use of Periodate-Treated Adrenocorticotropic Hormone (ACTH) ..... *Atsuo Kawai, Lowell L. Sparks, Hiroo Imura, Misako Tosaka and Peter H. Forsham* 280

Hyperlipidemia in Primary Gout ..... *Keith A. Barlow* 289

No. 4 (April)

Preliminary Report: Effect of Plasma Free Fatty Acids on Plasma Glucagon and Serum Insulin Concentrations ..... *Leonard L. Madison, Willis A. Seyffert, Jr., Roger H. Unger and Barbara Barker* 301

Preliminary Report: The Effect of Glucagon on Fructose Metabolism in Diabetic and Non-diabetic Human Beings ..... *Robert Metz* 305

Hypoglycemic and Uricosuric Properties of Acetohexamide and Hydroxyhexamide. *Ts'ai-fan Yu, Lawrence Berger and Alexander B. Gutman* 309

Effects of Desiccated Thyroid, Prednisolone and Chloroquine on Goiter and Antibody Titer in Chronic Thyroiditis ..... *Shuhei Ito, Tadao Tamura and Mitsuo Nishikawa* 317

Adaptive Mechanisms to Iodine Deficiency in Endemic Goiter in Misiones, Argentina ..... *Roberto J. Soto, Antonio H. Codevilla, Manfred Weinstein, Inés Rozados, Luis Rabinovich and David Goldberg* 326

Observations of the Renal Metabolism of Protein in Experimental and Clinical Nephrotic Syndromes ..... *Hy C. Sussman, Barbara Fowler and Thomas Findley* 336

Hydroxyproline Excretion During Starvation of Obese Subjects *Harold Brown, Alice Milner, James Kennedy and Sylvia Delena* 345

Inhibition of Adrenal Steroid Metabolism by Heparin In Vivo *J. Roland Carter, A. Ainsworth Hagen, John T. Biggs and Robert C. Troop* 352

Effect of High Altitude (14,100 Ft.) on Nitrogenous Components of Human Serum ..... *Bertwell K. Whitten, John P. Hannon, George J. Klain and Kenneth S. K. Chinn* 360

Preliminary Report: A Study of Calcium^{45} Turnover in Skeletal Fluorosis *B. S. Narasinga Rao, A. H. Siddiqui and S. G. Srikantia* 366

Influence of 2,4-Dinitrophenol on Myocardial Metabolism and Hemodynamics. *John C. Scott, M. Gold, A. A. Bechtel and John J. Spitzer* 370

Renal Excretion of Hydrogen in Primary Gout
Gérard E. Plante, Jacques Durivage and Guy Lemieux 377
Small Intestinal Absorption of Amino Acids in Scurvy
Stuart J. Saunders and Ralph E. Kirsch 386

No. 5 (May)

Changes in Body Composition During Treatment of Obesity by Intermittent Starvation ....*J. C. Birkenhäger, A. Haak and J. G. Ackers* 391
Effect of Oxandrolone on Plasma Lipids and Lipoproteins of Patients with Disorders of Lipid Metabolism
Bernard A. Sachs and Lila Wolfman 400
Utilization of Parenterally Injected ^{14}C-Polypeptide Chains of Insulin by Proteins of Organs and Tissues
A. S. Konikova, S. A. Morenkova, M. G. Kritzman and N. V. Perova 411
Effects of Chlorothiazide and Amipramizide (MK 870) on the Renal Excretion of Calcium, Phosphate and Magnesium
Cristobal G. Duarte 420
Hyperuricemia and Urate Excretion in Chronic Renal Disease
John J. McPhaul, Jr. 430
Failure of Trivalent Chromium to Improve Hyperglycemia in Diabetes Mellitus .....*L. Sherman, J. A. Glennon, W. J. Brech, G. H. Klomberg and E. S. Gordon* 439
Ovulatory Suppressants, Estrogens, and Carbohydrate Metabolism
Zenaida Javier, Herbert Gershberg and Mildred Hulse 443
Some Clinical Potentials of Chlorophenoxyisobutyrate (Clofibrate) Therapy (Hyperlipidemia—Angina Pectoris—Blood Sludging—Diabetic Neuropathy) .....*Garfield G. Duncan, Frank A. Elliott, Theodore G. Duncan and Joseph Schatanoff* 457

No. 6 (June)

A Diabetogenic Polypeptide from Hog and Sheep Adenohypophysis Similar to that Found in Lipoatrophic Diabetes
L. H. Louis and J. W. Conn 475
The Diabetogenic Action of Human Growth Hormone: Glucose-Fatty Acid Interrelationships .....*Samuel L. Hollobaugh, Manuel Tzagournis, Robert L. Folk, Fred A. Kruger and George J. Hamwi* 485
Coexistent Diabetes Mellitus and Isolated ACTH Deficiency: Report of a Case .....*Eugene A. Abramson and Ronald A. Arky* 492
Glucose and Insulin Alterations After One Year of Combination-type Oral Contraceptive Treatment .....*William N. Spellacy, Karen L. Carlson, Sharon A. Birk and Sandra L. Schade* 496
Deposition and Mobilization of Fatty Acids in Adipose Tissue
J. H. Forsyth, J. Karmarkar and D. M. Hegsted 502

The Rate of Appearance of FFA in Plasma Triglyceride of Normal and Obese Subjects
Harvey I. Miller, Walter M. Bortz and Beatrice C. Durham 515
The Relation of BSP Retention During Prolonged Fasts to Changes in Plasma Volume ..... *Ernst J. Drenick* 522
Effect of Starvation on Plasma Immunoreactive Insulin and Non-suppressible Insulin-like Activity in Normal and Obese Humans
Solomon S. Solomon, John W. Ensinck and Robert H. Williams 528
Association of Increased Plasma Lipid Levels with Brain Stimulation
William H. Gutstein, Daniel J. Schneck and Harold D. Appleton 535
Relation Between Dietary Fat and Fatty Acid Composition of "Endogenous" and "Exogenous" Very Low Density Lipoprotein Triglycerides (D < 1.006) ..... *Yvonne H. Edelin, Laurance W. Kinsell, George D. Michaels and Stanford D. Splitter* 544
Diazacholesterol Effect Upon Membrane ATPase
Harry Darrow Brown, Swaraj K. Chattopadhyay and Anil B. Patel 555
Preliminary Report: Metabolism of N^{15} Labeled Uric Acid in Down's Syndrome
Stephen P. Coburn, Edward M. Sirlin and Edwin T. Mertz 560

No. 7 (July)

Muscle Cell pH and Potassium Movement in Metabolic Acidosis
R. O. H. Irvine and Jocelyn Dow 563
The Effect of Diet in Variegate (South African Genetic) Porphyria
Mark G. Perlroth, Donald P. Tschudy, Arnold Ratner, William Spaur and Allan Redeker 571
Erythrocyte Mechanisms in the Transport of Carbon Dioxide: An Optional Scheme ..... *A. P. Briggs* 582
Clofibrate Effect on Catecholamine-induced Metabolic Changes in Humans ..... *Donald B. Hunninghake and Daniel L. Azarnoff* 588
Antithyroid Activity of Some Naturally Occurring Isothiocyanates In Vitro ..... *Pavel Langer and Monte A. Greer* 596
The Impairment of Glucogenesis by Gram Negative Infection
Kathryn F. LaNoue, Arthur D. Mason, Jr., and Jerl P. Daniels 606
Effects of Excess Iodide on the Metabolism of Thyroxine in the Rat
Takashi Yamada, A. Eric Jones and Stella Mothon 612
The Effect of Starvation in the Normal Dog Including the Dalmatian Coach Hound ..... *Guy Lemieux and Gerald E. Plante* 620
Alterations in Glucose Turnover Following Single Intravenous Injections of Epinephrine and Glucagon in Dogs ..... *Shafeek S. Sanbar* 631
Organ Culture of Pancreases of Fetuses From Normal and Diabetic Rats: Effect of Glucose on the Insulin Content of the Media
Stanley L. Erlandsen, Lemen J. Wells and Arnold Lazarow 638
The Relation of Fat and Protein Catabolic Actions of Cortisol to Glucose Homeostasis in Fasting Sheep ..... *J. M. Bassett* 644

No. 8 (August)

Method for Measuring Hormonal Effects on Conversion of Adenosine Triphosphate to Adenosine 3′,5′-Monophosphate by Isolated Lipocytes .....*Robert H. Williams, Sandra A. Walsh, Dieter K. Hepp and John W. Ensinck* 653

Acetohexamide in the Therapy of Diabetes Mellitus
Marios C. Balodimos, Charles A. Graham, Alexander Marble and Leo P. Krall 669

Influence of a Terminal Period of Fasting on the Serum and Tissue Lipid Effects of Ethyl Chlorophenoxyisobutyrate (CPIB)
Charles H. Duncan and Maurice M. Best 681

Blood Pyruvate and Plasma Glucose Levels During Oral and Intravenous Glucose Tolerance Tests in Obese and Non-obese Women
J. W. H. Doar, Victor Wynn and D. G. Cramp 690

Response of Free Fatty Acids to Coffee and Caffeine
Samuel Bellet, Alfred Kershbaum and E. Michael Finck 702

The Lipolytic Action of Fructose-1-6-Diphosphate ....*C. Chlouverakis* 708

Induction of Adrenal Insufficiency in the Rat by Sensitization with Homologous Tissue .....*Toshio Irino and Arthur Grollman* 717

Phosphorylase Activity and Glycogen Levels in the Adrenal Cortex of Rats Subjected to Acute ACTH Stimulation
I. Vilchez and A. M. Chalvardjian 725

The Relationship Between Glucose Tolerance, Plasma Insulin and Corticosteroid Therapy in Patients with Rheumatoid Arthritis
Margaret T. McKiddie, Mukundrai K. Jasani, Keith D. Buchanan, James A. Boyle and W. Watson Buchanan 730

Metabolic Effects of Norepinephrine on the Heart in Relation to the Functional Status of the Thyroid
John J. Spitzer, Martin Gold, Alan N. Miller and John C. Scott 740

Preliminary Report: Effect of Calcium Infusion on Serum Calcium Levels in Hypothyroidism
B. Lawrence Riggs, James D. Jones and Claude D. Arnaud 747

No. 9 (September)

Effects of a Corticoid on Lipid Metabolism and on Urea Formation in Isolated Rat Liver.....*C. H. Wu, A. Lemberg, J. A. Daunas, B. Brodoff, E. C. Sodero, R. Levine and J. C. Penhos* 751

Factors Affecting Circadian Periodicity of Blood Amino Acids in Man
Ralph D. Feigin, Albert S. Klainer and William R. Beisel 764

Response of Hepatic Alpha-Glycerophosphate to Changes in Hepatic Glucose Formation .....*Arthur Frank, John W. Farquhar and Gerald M. Reaven* 776

Distribution of Protein, Lipid and Administered Bromide Between Serum and CSF in Myxedema ..... *Richard A. Schacht, Wallace W. Tourtellotte, Boy Frame and Stewart N. Nickel* 786

Preliminary Report: A Hypothesis in the Homocystinuric's Response to Pyridoxine ..... *Sally Kelly and William Copeland* 794

Stimulation of Insulin Secretion in Man by Medium Chain Triglycerides *Norton J. Greenberger, Manuel Tzagournis and Thomas M. Graves* 796

Insulin Secretion in Experimental Obesity ..... *Willy J. Malaisse, Francine Malaisse-Lagae and Douglas L. Coleman* 802

Serum CPK in Muscular Dystrophy and Myotonia Dystrophica *T. S. Danowski, G. Sabeh, J. W. Vester, R. A. Alley, T. J. Robbins, C. T. Tsai, M. Pazirandeh and K. Sekaran* 808

Metabolism of a Tracer Dose of Palmitate-1-C^{14} by Liver of Normal and Diabetic Rats Perfused With and Without the Addition of Insulin ..... *David E. Haft* 818

Meal Eating and Refeeding After a Single Fast as a Stimulus for Increasing the Number of Fat Cells in Abdominal Adipose Tissue of Rats ..... *T. Braun, L. Kazdová, P. Fábry, Z. Lojda and V. Hromádková* 825

The Effects of Fasting on Glucose Utilization in the Isolated Perfused Rat Liver ..... *Edward F. McCraw* 833

Lipoprotein Lipase Activity and Hypertriglyceridemia in Alloxan Diabetic Rabbits ..... *Thomas P. O'Connor and J. David Schnatz* 838

No. 10 (October)

Editorial Policy ..... *Garfield G. Duncan* 845

Effects of the Uricogenic Agent, 2-ethylamino-1,3,4-thiadiazole in Hypoxanthine-guanine Phosphoribosyl Transferase Deficiency *William L. Nyhan, Lawrence Sweetman and Michael Lesch* 846

Coexistent Hyperthyroidism and Hyperparathyroidism *M. M. S. Ahuja and I. J. Chopra* 854

Effects of Ethacrynic Acid and Furosemide on Urinary Calcium, Phosphate and Magnesium ..... *Cristobal G. Duarte* 867

Effect of Ketone Acids on Glucose and Fat Metabolism in Adipose Tissue of the Rat .... *Miloje Devecerski, Charles E. Pierce and Thomas F. Frawley* 877

Radioiron Absorption and Utilization in Idiopathic Hemochromatosis Using a Marker ..... *R. Sinniah and T. K. Bell* 885

Hyperglycemia, Keto-acidosis and Coma in a Nondiabetic Hyperthyroid Patient ..... *Inder Singh and M. C. Srivastava* 893

An Autopsy Study of Endocrine Organ Changes in Diabetes Mellitus *Donald S. Fraley and Robert S. Totten* 896

Response of Plasma Insulin and Growth Hormone to Carbohydrate and Protein Feeding .... *Johanna A. Pallotta and Patricia J. Kennedy* 901

Effects of Ethyl Chlorophenoxyisobutyrate on Thyroxine Distribution, Transport and Metabolism in Man
Byron U. Musa, James T. Ogilvie and J. T. Dowling 909

Effects of Coffee Ingestion on Oral Glucose Tolerance Curves in Normal Human Subjects ..... *Leonard J. Feinberg, Herschel Sandberg, Oscar De Castro and Samuel Bellet* 916

Factitious Hypoglycemia in a Diabetic: Metabolic Studies and Diagnosis with Radioactive Isotopes ..... *M. J. Whelton, E. Samols, H. S. Williams, C. Hirson and V. Marks* 923

Serum Insulin in Early Latent Diabetes Mellitus
Gina Shochat and Douglas L. Wilansky 928

The Effects of d-2(p-Aminophenyl)-2-Phenylethylamine (SK&F-12185) in Cushing's Syndrome Associated with Adrenocortical Carcinoma
J. L. Gabrilove, G. L. Nicolis and T. F. Gallagher 936

Blood Pyruvate and Lactate During Febrile Human Infections
Verne E. Gilbert 943

No. 11 (November)

Pituitary Ablation, Insulin Dosage, and Course of Diabetic Retinopathy
T. S. Danowski, G. Sabeh, R. A. Alley, T. J. Robbins, M. E. Sarver, J. A. Parsons and A. F. Susen 953

Evaluation of Clinical Activity of Acromegaly by Observation of the Diurnal Variation of Serum Inorganic Phosphate
Donald E. McMillan, John J. Deller, Gerold M. Grodsky and Peter H. Forsham 966

Alcohol Hypoglycemia. VII. Further Studies on the Refractoriness of Obese Subjects ..... *Ronald A. Arky, Eugene A. Abramson and Norbert Freinkel* 977

Fibrous Dysplasia of Bone with Vitamin D Resistant Rickets: A Case Study ..... *Will G. Ryan, Albert F. Nibbe, Theodore B. Schwartz and Robert D. Ray* 988

Hyperinsulinism with Hypoglycemia Following Acute Myocardial Infarction ..... *James G. Devlin and Nuala Stephenson* 999

Isolated Human Growth Hormone Deficiency. III. Insulin Secretion in Sexual Ateliotic Dwarfism ..... *T. J. Merimee, D. Rabinowitz, D. L. Rimoin and V. A. McKusick* 1005

Isolated Human Growth Hormone Deficiency. IV. The Response of Sexual Ateliotic Dwarfs to Exogenous Growth Hormone
T. J. Merimee, D. Rabinowitz, J. Hall, D. L. Rimoin and V. A. McKusick 1012

Adrenergic Control Mechanism for Vasopressin-Induced Plasma Growth Hormone Response ..... *Sylvia A. Heidingsfelder and William G. Blackard* 1019

The Half-life of Endogenous Serum Immunoreactive Insulin in Man
R. F. Williams, R. E. Gleason and J. S. Soeldner 1025

Metabolic Correlates of the Hypolipemic Response of Hypophysectomized Rats to Growth Hormone .....*Norbert I. Swislocki* 1030

Differences Between the Sexes in Voluntary Alcohol Consumption and Liver ADH-Activity in Inbred Strains of Mice
Kalervo Eriksson and Pekka H. Pikkarainen 1037

The Origin of Plasma Arachidonic Acid in Dogs
Raymond Caren and Lucille Corbo 1043

Phospholipid Composition and Synthesis in Male Rabbit Aortas
Robert J. Morin 1051

No. 12 (December)

What the Social Security Disability Program Means to You and Your Patients .....*Bernard Popick* 1059

Alterations of Iodine Metabolism in Asymptomatic Thyroiditis
M. Camus, A. M. Ermans and P. A. Bastenie 1064

Glucose and Starch Tolerance After Recovery from Kwashiorkor
G. C. Cook 1073

Intracellular pH Changes Associated with Protein and Potassium Deficiency .....*William R. Sanslone and Edward Muntwyler* 1084

Effect of Cold on Muscle Potentials and Electrolytes
R. Klein, J. E. Haddow, C. Kind and F. Cockburn 1094

Muscle Mass Determination by Isotopic Dilution of Creatine-^{14}C
Clifton K. Meador, Robert A. Kreisberg, Jack P. Friday, Jr., Braxton Bowdoin, Patricia Coan, James Armstrong and Jane B. Hazelrig 1104

Aspects of Fat Metabolism in Anorexia Nervosa
A. H. Crisp, L. M. Blendis and G. L. S. Pawan 1109

Preliminary Report: High Frequency Blood Glucose Oscillations in Man
A. Iberall, M. Ehrenberg, S. Cardon and M. Simenhoff 1119

Plasma Free Fatty Acid and Triglyceride Turnover in Obesity
P. J. Nestel and H. M. Whyte 1122

Evaluation of the Effects of Egg Yolk Lipids Upon Plasma Lipids in Human Subjects .....*S. D. Splitter, G. D. Michaels, G. Schlierf, P. D. S. Wood and L. W. Kinsell* 1129

In Vivo Measurement of Bone Mass in the Radius
C. Conrad Johnston, Jr., David M. Smith, Pao-Lo Yu and W. P. Deiss, Jr. 1140

Preliminary Report: Virus-Induced Diabetes in Mice
George L. A. From, John E. Craighead, Mary F. McLane and Jurgen Steinke 1154

AUTHOR INDEX

Abrams, M. E., 84
Abramson, E. A., 492, 977
Ackers, J. G., 391
Ahuja, M. M. S., 854
Alley, R. A., 97, 808, 953
Appleton, H. D., 535
Arky, R. A., 492, 977
Armstrong, J., 1104
Arnaud, C. D., 747
Azarnoff, D. L., 588

Balodimos, M. C., 669
Barker, B., 301
Barlow, K. A., 289
Bassett, J. M., 644
Baschieri, L., 271
Bastenie, P. A., 1064
Bechtel, A. A., 370
Beisel, W. R., 764
Bell, T. K., 885
Bellet, S., 702, 916
Benoit, F. L., 20
Berger, L., 309
Bergstrom, W. H., 168
Best, M. M., 681
Biggs, J. T., 352
Binia, A., 10
Birk, S. A., 496
Birkenhäger, J. C., 391
Blackard, W. G., 1019
Blendis, L. M., 1109
Boden, G., 1
Bortz, W. M., 62, 515
Bowdoin, B., 1104
Boyle, J. A., 730
Braun, T., 825
Brech, W. J., 439
Briggs, A. P., 582
Brin, M., 168
Brodoff, B., 246, 751
Brown, H., 345
Brown, H. D., 555
Brunet, G., 158
Buchanan, K. D., 730
Buchanan, W. W., 730
Butterfield, W. J. H., 84

Camus, M., 1064
Cardon, S., 1119
Caren, R., 1043
Carlson, K. L., 496
Carter, J. R., 352
Ceccarini, E., 271
Chattopadhyay, S. K., 555
Chalvardjian, A. M., 725
Chinn, K. S. K., 360
Chlouverakis, C., 708
Chopra, I. J., 854
Coan, P., 1104
Coburn, S. P., 560
Cockburn, F., 1094
Codevilla, A. H., 326
Coleman, D. L., 802
Conn, J. W., 475
Cook, G. C., 1073
Corbo, L., 1043
Craighead, J. E., 1154
Cramp, D. G., 690
Crisp, A. H., 1109
Cushman, P., Jr., 263

Daniels, J. P., 606
Danowski, T. S.,
97, 808, 953
Daunas, J., 246
Daunas, J. A., 751
De Castro, O., 916
Deiss, Jr., W. P., 1140
Delena, S., 345
Deller, J. J., 966
Devecerski, M., 877
Devlin, J. G., 999
Doar, J. W. H., 690
Dohmen, R., 10
Doisy, R. J., 114
Dow, J., 563
Dowling, J. T., 909
Drenick, E. J., 522
Dronkert, A., 181
Duarte, C. G., 420, 867
Dufau, M. L., 10
Duncan, C. H., 681
Duncan, G. G., 218, 457
Duncan, T. G., 218, 457
Durham, B. C., 515
Durivage, J., 377

Edelin, Y. H., 544
Ehrenberg, M., 1119
Eik-Nes, K. B., 189
Elliott, F. A., 457
Engels, J. A., 189
Ensinck, J. W., 528, 653
Eriksson, K., 1037
Erlandsen, S. L., 638
Ermans, A. M., 1064

Fabry, P., 825
Farquhar, J. W., 776
Fasciolo, J. C., 10
Feigin, R. D., 764
Feinberg, L. J., 916
Field, J. B., 226
Finck, E. M., 702
Findley, T., 336
Finster, J. L., 54
Folk, R. L., 485
Forsham, P. H.,
105, 280, 966
Forsyth, J. H., 502
Fowler, B., 336
Fraley, D. S., 896
Frame, B., 786
Frank, A., 776
Frawley, T. F., 877
Freinkel, N., 977
Friday, Jr., J. P., 1104
Friedlander, R. L., 189
From, G. L. A., 1154

Gabrilove, J. L., 936
Gagliardino, J. J., 139
Gallagher, T. F., 936
Garratt, C. J., 84
Gates, A. H., 181
Gershberg, H., 108, 443
Gilbert, V. E., 943
Gleason, R. E., 1025
Glennon, J. A., 439
Gold, H., 74
Gold, M., 370, 740
Goldberg, D., 326
Gordon, E. S., 439
Graham, C. A., 669
Gramm, H. F., 199
Grasso, R., 271
Graves, T. M., 796
Greenberger, N. J., 796
Greer, M. A., 596
Grodsky, G. M., 966

Grollman, A., 717
Gutman, A. B., 309
Gutstein, W. H., 535

Haak, A., 391
Haddow, J. E., 1094
Haft, D. E., 818
Hagen, A. A., 352
Hamwi, G. J., 485
Hannon, J. P., 360
Hazelrig, J. B., 1104
Hecht, A., 108
Hegsted, D. M., 502
Heidingsfelder, S. A., 1019
Hepp, D. K., 653
Hirson, C., 923
Hollobaugh, S. L., 485
Hromádková, V., 825
Hulse, M., 443
Hunninghake, D. B., 588

Iberall, A., 1119
Imura, H., 280
Irino, T., 717
Irvine, R. O. H., 563
Issekutz, B., Jr., 62
Ito, S., 317

Jarrett, R. J., 155
Jasani, M. K., 730
Javier, Z., 443
Johnston, C. C., Jr., 1140
Jones, A. E., 612
Jones, J. D., 747

Karmarkar, J., 502
Kawai, A., 280
Kazdová, L., 825
Keen, H., 155
Kennedy, J., 345
Kennedy, P. J., 901
Kershbaum, A., 702
Kind, C., 1094
Kinsell, L. W., 544, 1129
Kirsch, R. E., 386
Klain, G. J., 360
Klainer, A. S., 764
Klein, R., 1094
Kliman, B., 10
Klomberg, G. H., 439
Konikova, A. S., 411
Kozak, G. P., 199
Kraemer, E., 260
Krall, L. P., 669
Kreisberg, R. A., 1104
Kritzman, M. G., 411
Kruger, F. A., 485

Langer, P., 596
LaNoue, K. F., 606
Lazarow, A., 638
Lea, M. A., 126
Lemberg, A., 246, 751
Lemieux, G., 377, 620
Lesch, M., 846
Levine, R., 246, 751
Levine, R. A., 34, 114
Lojda, Z., 825
Louis, L. H., 475

Maagøe, H., 133
Madison, L. L., 301
Malaisse, W. J., 126, 802
Malaisse-Lagae, F., 126, 802
Marble, A., 669
Marks, V., 923
Mason, A. O., Jr., 606
McCraw, E. F., 833
McKendry, J. B. R., 148
McKiddie, M. T., 730
McKusick, V. A., 1005, 1012
McLane, M. F., 1154
McMillan, D. E., 105, 966
McPhaul, J. J., Jr., 430
Meador, C. K., 1104
Merimee, T. J., 1005, 1012
Mertz, E.T., 560
Metz, R., 158, 305
Michaels, G. D., 544, 1129
Miller, A. N., 740
Miller, H. I., 62, 515
Milner, A., 345
Mintz, D. H., 54
Morenkova, S. A., 411
Morin, R. J., 1051
Moses, C., 97
Mothon, S., 612
Muntwyler, E., 1084
Musa, B. U., 909

Nestel, P. J., 1122
Nibbe, A. F., 988
Nickel, S. N., 786
Nicolis, G. L., 936
Nishikawa, M., 317
Nyhan, W. L., 846

O'Connor, T. P., 838
Ogilvie, J. T., 909
Ota, M., 181

Pallotta, J. A., 901
Parsons, J. A., 953
Patel, A. B., 555
Patton, W. C., 46
Paul, P., 62
Pawan, G. L. S., 1109
Pazirandeh, M., 808
Pearson, O. H., 74
Penhos, J. C., 246, 751
Perlroth, M. G., 751
Perova, N. V., 411
Pierce, C. E., 877
Pikkarainen, P. H., 1037
Plante, G. E., 377, 620
Popick, B., 1059

Rabinovich, L., 326
Rabinowitz, D., 1005, 1012
Rao, B. S. N., 366
Ratner, A., 571
Ray, R. D., 988
Reaven, G. M., 776
Redeker, A., 571
Riggs, B. L., 747
Rimoin, D. L., 1005, 1012
Robbins, T. J. L., 97, 808, 953
Romero, J. C., 10
Rozados, I., 326
Ryan, W. G., 988

Sabeh, G., 97, 808, 953
Sachs, B. A., 400
Salabè, G. B., 271
Salter, J. M., 158
Samaan, N. A., 74
Samols, E., 923
Sanbar, S. S., 631
Sandberg, H., 916
Sanslone, W. R., 1084
Sarver, M. E., 953
Saunders, S. J., 386
Sauer, J. H., 105
Schade, S. L., 496
Schacht, R. A., 786
Schatanoff, J., 457
Schlierf, G., 1129
Schnatz, J. D., 838
Schneck, D. J., 535
Schwartz, T. B., 988
Scott, J. C., 370, 740
Sekaran, K., 808
Seyffert, W. A., Jr., 301

Sherman, L., 439
Shochat, G., 928
Siddiqui, A. H., 366
Simenhoff, M., 1119
Singh, I., 893
Sinniah, R., 885
Sirlin, E. M., 560
Smith, D. M., 1140
Smith, J. B., 218
Sodero, A., 246, 751
Soeldner, J. S., 1, 1025
Solomon, S. S., 528
Soto, R. J., 326
Sparks, L., 280
Spaur, W., 571
Spector, S., 74
Spellacy, W. N., 496
Spitzer, J. J., 370, 740
Splitter, S. D., 544, 1129
Srikantia, S. G., 366
Srivastava, M. C., 893
Staneloni, R. J., 10
Steinke, J., 1, 1154
Stephenson, N., 999
Sterky, G., 84
Stock, R., 54
Streeten, D. H. P., 114
Summer, G. K., 46
Susen, A. F., 953
Sussman, H. C., 336
Sweetman, L., 846
Swislocki, N. I., 174, 1030

Tamura, T., 317
Taylor, A. L., 54
Thorn, G. W., 1
Tosaka, M., 280
Totten, R. S., 896
Tourtellotte, W. W., 786
Troop, R. C., 352
Tsai, C. T., 808
Tschudy, D. P., 571
Tzagournis, M., 485, 796

Unger, R. H., 301

Vester, J. W., 808
Vilchez, I., 725

Walenga, R., 168
Walsh, S. A., 653
Watten, R. H., 20
Weinstein, M., 326
Weir, T. F., 97
Wells, L. J., 638
Whelton, M. J., 923
Whichelow, M. J., 84
Whitten, B. K., 360
Whyte, H. M., 1122
Wilansky, D. L., 928
Williams, H. S., 923
Williams, R. F., 1025
Williams, R. H., 528, 653
Wisniewski, K., 212
Wiswell, J. G., 260
Wood, P. D. S., 1129
Wolfman, L., 400
Wu, C. H., 246, 751
Wynn, V., 690

Yamada, T., 612
Yu, P., 1140
Yu, T., 309

Zarebski, M., 212
Zitomer, B. R., 199

Index of Subjects

Acetoacetate, affecting adipose tissue, 877–883
Acetohexamide
  compared with tolbutamide, 218–225
  in diabetes, 669–678
  uricosuric and hypoglycemic properties of, 309–315
Acidosis
  with hyperglycemia and coma in hyperthyroidism, 893–895
  lactate isomers in, efficacy of, 168–172
  muscle cell pH and potassium movement in, 563–569
Acromegaly
  and growth hormone response to glucose, 1–8
  serum phosphorus levels in, 966–975
ACTH
  affecting phosphorylase and adrenal glycogen levels, 725–728
  deficiency with diabetes, 492–495
  periodate-treated, as antigen, 280–288
3′,5′-Adenosine monophosphate
  formation by lipocytes, factors affecting, 653–667
  responses to administration of, 34–44
Adenosine triphosphatase, muscle membrane preparations, diazacholesterol affecting, 555–559
Adipose tissue
  fatty acids in, 502–514
  growth after refeeding, 825–831
  ketone acids affecting, 877–883
  See also Obesity
Adrenal glands
  autopsy studies in diabetes, 896–900
  carcinoma with Cushing's syndrome, treatment of, 936–941
  diabetes with ACTH deficiency, 492–495
  glycogen levels, ACTH affecting, 725–728
  and hypothalamic-pituitary function in thyroid disorders, 263–269
  insufficiency induced by sensitization with homologous tissue, 717–724
  periodate-treated ACTH as antigen, 280–288
  See also Corticosteroids
Adrenergic control mechanism, and vasopressin-induced growth hormone release, 1019–1023

Albright's disease, and vitamin D-resistant rickets, 988–997
Alcohol, hypoglycemia from, in obesity, 977–986
Alcohol dehydrogenase in liver, sex differences in activity of, 1037–1042
Aldosterone secretion, in sodium deprivation, 10–18
Altitude, affecting nitrogenous components of serum, 360–364
Amino acids
  circadian rhythms in blood, 764–774
  intestinal absorption in scurvy, 386–389
  in serum, altitude affecting, 360–364
Aminolevulinic acid synthetase, activity in porphyria, 571–580
d-2(p-Aminophenyl)-2-phenylethylamine, in Cushing's syndrome with adrenocortical carcinoma, 936–941
Amipramizide, renal effects of, 420–428
Angina pectoris, clofibrate affecting, 461–463
Anorexia nervosa, fat metabolism in, 1109–1117
Antibodies, in chronic thyroiditis, and combined therapy with three drugs, 317–324
Anticoagulants, clofibrate therapy with, 460–461
Antigenic use of periodate-treated ACTH, 280–288
Aorta, phospholipids in, 1051–1857
Arachidonic acid, in plasma, origin of, 1043–1049
Argentina, iodine deficiency in, 326–333
Arteriosclerotic heart disease, clofibrate in, 461–466
Ateliotic dwarfism, sexual
  insulin secretion in, 1005–1011
  and response to growth hormone, 1012–1017
Atromid-S. *See* Clofibrate

Blood
  -brain barrier, in myxedema, 786–792
  clofibrate affecting sludging of, 459–460
  continuous sampling in vivo, 148–154
  volume
    changes in fasting, 133–138, 522–526
    in sodium deprivation, 10–18
Body composition, changes in starvation, 391–399
Bone
  fibrous dysplasia with vitamin D-resistant rickets, 988–997
  kinetics in fluorosis, 366–369
  measurement of mass, 1140–1152
Brain stimulation, affecting plasma lipids, 535–541
Bromides, in blood and spinal fluid, in myxedema, 786–792
Bromsulphalein retention, and plasma volume changes in fasting, 522–526

Caffeine
  affecting glucose tolerance test, 916–921
  affecting plasma FFA, 702–706
Calcium
  diuretics affecting excretion of, 420–428, 867–875
  infusion in hypothyroidism, 747–749
  radioactive, turnover in skeletal fluorosis, 366–369
Carbohydrates
  affecting urea synthesis in liver, 158–166
  growth hormone affecting metabolism of, in hypopituitary dwarfs, 74–82
  oral contraceptives affecting metabolism of, 443–455, 496–501
  plasma insulin and growth hormone response to feeding, 901–907
  tolerance tests after recovery from kwashiorkor, 1073–1082
  See also Glucose
Carbon dioxide, erythrocyte mechanisms in transport of, 582–586
Carbonic anhydrase, erythrocyte, 582
Carcinoma, adrenocortical, with Cushing's syndrome, treatment of, 936–941
Cerebrospinal fluid, protein in, in myxedema, 786–792
Chlorophenoxyisobutyrate (CPIB). *See* Clofibrate
Chloroquine, with desiccated thyroid, in chronic thyroiditis, 317–324
Chlorothiazide, renal effects of, 420–428
Cholesterol levels
  clofibrate affecting, 461–472
  egg yolk affecting, 1129–1138
  oxandrolone affecting, 401–403
Chromium, dietary
  and glucose tolerance in elderly subjects, 114–124
  for hyperglycemia in diabetes, 439–442
Chylomicron glycerides, fatty acids in, 547, 553
Circadian rhythms, of blood amino acids, 764–774
Cirrhosis, insulin levels in, affected by medium chain triglycerides, 796–800

Clofibrate
affecting lipid levels in fasting, 681–688
affecting plasma FFA levels, 588–594
affecting thyroxine transport, 909–914
clinical potentials of, 457–473
Clomiphene, and estrogen synthesis in ovary, 189–197
Coffee
affecting glucose tolerance test, 916–921
affecting plasma FFA, 702–706
Cold, affecting muscle potentials and electrolytes, 1094–1102
Coma, with hyperglycemia and keto-acidosis, in hyperthyroidism, 893–895
Contraceptives, oral, affecting carbohydrate metabolism, 443–455, 496–501
Corticosteroids
affecting glucose tolerance in rheumatoid arthritis, 730–737
affecting lipid metabolism in liver, 751–762
inhibition of metabolism by heparin, 352–358
methopyrapone infusion affecting plasma levels of, 263–269
See also ACTH; Cortisol
Cortisol
and glucose homeostasis in fasting, 644–651
responses to 3′,5′-AMP, 34–44
Creatine, radioactive, for muscle mass determination, 1104–1108
Creatine phosphokinase, in myopathies, 808–815
Cushing's syndrome, and adrenocortical carcinoma, treatment of, 936–941

Diabetes
acetohexamide in, 669–678
affecting gout, 309–315
compared with tolbutamide, 218–225
with ACTH deficiency, 492–495
autopsy of endocrine organ changes in, 896–900
chromium supplements for hyperglycemia in, 439–442
early latent, serum insulin in, 928–934
factitious hypoglycemia in, 923–927
and fatty acid oxidation by liver, 818–823
and fucose in serum, 105–107
glucagon affecting fructose metabolism in, 305–307
and gluocse uptake during exercise, 84–95
and growth hormone response to hypoglycemia in pregnancy, 54–60
and hyperlipidemia, clofibrate in, 463–469
hypertriglyceridemia in, lipoprotein lipase affecting, 838–843
and hypothyroidism, 108–112
neuropathy in
clofibrate in, 466–468
gastric, 199–210
ovulatory suppressants in, 443–455
retinopathy in, pituitary ablation in, 953–963
virus-induced, 1154–1158
Diabetogenic polypeptide, from animal adenohypophysis, 475–484
Diazacholesterol, affecting membrane ATPase, 555–559
Diet
chromium intake
affecting glucose tolerance in elderly subjects, 114–124
supplements in diabetes, 439–442
coffee ingestion
affecting glucose tolerance test, 916–921
affecting plasma FFA, 702–706
effects in porphyria, 571–580
egg yolk affecting plasma lipids, 1129–1138
fat ingestion, and triglycerides of very low density lipoproteins, 544–553
hypothalamic regulation of feeding behavior, 535–541
responses to carbohydrate and protein feeding, 901–907
sodium intake
affecting blood volume changes in fasting, 133–138
responses to low sodium, 10–18
See also Fasting
Diiodotyrosine dehalogenating activity, in thyroid cold nodules, 271–278
2,4-Dinitrophenol, affecting myocardial metabolism, 370–376
Disability program, Social Security, 1059–1063
Diuretics, renal effects of, 420–428, 867–875
Down's syndrome, uric acid metabolism in, 560–561
Dwarfism
hypopituitary, carbohydrate metabolism in, growth hormone affecting, 74–82
sexual ateliotic
insulin secretion in, 1005–1011
and response to growth hormone, 1012–1017

Egg yolk, affecting plasma lipids, 1129–1138
Elderly persons, glucose tolerance in, chromium affecting, 114–124
Electrolytes, muscle, cold affecting, 1094–1102
Endotoxin, affecting glucogenic enzymes in liver, 606–611
Enovid, affecting carbohydrate metabolism, 443–455, 496–501
Epinephrine, affecting glucose turnover, 631–636
Erythrocytes
  and carbon dioxide transport, 582–586
  diazacholesterol affecting membrane ATPase, 555–559
Estrogens
  in oral contraceptives, affecting carbohydrate metabolism, 443–455, 496–501
  synthesis in ovary, clomiphene affecting, 189–197
Ethacrynic acid, affecting renal excretion of ions, 867–875
2-Ethylamino-1,3,4-thiadiazole, affecting uric acid levels, 846–852
Exercise, and glucose uptake, 84–95
Extracellular fluid volume, in sodium deprivation, 10–18

Fasting
  blood volume changes in, 133–138
  body composition changes in, 391–399
  bromsulphalein retention and plasma volume changes in, 522–526
  effects in normal dogs, 620–628
  and glucose and FFA response to growth hormone, 174–179
  glucose homeostasis in, cortisol affecting, 644–651
  and glucose uptake during exercise, 84–95
  and glucose utilization in liver, 833–836
  hydroxyproline excretion in, 345–350
  and insulin-like activity in serum, 528–533
  lipid levels in, CPIB affecting, 681–688
  refeeding after, and adipose tissue growth, 825–831
Fat
  ingestion of, and triglycerides of very low density lipoproteins, 544–553
  lipogenesis in adipose tissue, after refeeding, 825–831
  lipolytic action of fructose-1-6-diphosphate, 708–715
metabolism in anorexia nervosa, 1109–1117
Fatty acids
  in adipose tissue, 502–514
  in aortas of rabbits, 1051–1057
  free
    affecting serum insulin and plasma glucagon, 301–304
    clofibrate affecting levels of, 588–594
    cortisol affecting, in fasting, 644–651
    in fasting, 174–179, 644–651
    and glucose tolerance after growth hormone, 485–490
    growth hormone affecting, 174–179, 644–651, 1030–1035
    ketone acids affecting metabolism of, 877–883
    norepinephrine affecting oxidation of, 740–746
    oxidation rate of, 62–72
    and plasma triglycerides, 515–520
  response to 3′,5′-AMP, 34–44
    response to coffee and caffeine, 702–706
    response to growth hormone in fasting state, 174–179
    turnover in obesity, 1122–1127
  oxidation by liver, insulin affecting, 818–823
  in triglycerides of very low density lipoproteins, 544–553
Febrile human infections, blood pyruvate and lactate in, 943–949
Feeding behavior, hypothalamic regulation of, 535–541
Fetal pancreas, organ culture of, 638–643
Fibrous dysplasia of bone, with vitamin D-resistant rickets, 988–997
Fluorosis, skeletal, radiocalcium turnover in, 366–369
Fructose
  affecting urea synthesis in liver, 158–166
  glucagon affecting metabolism of, 305–307
  oxidation by isolated Langerhans islets, 155–157
Fructose-1-6-diphosphate
  lipolytic action of, 708–715
  measurements in liver, and glucogenesis, 606–611
Fucose, serum levels in diabetes, 105–107
Furosemide, affecting renal excretion of ions, 867–875

Galactose, oxidation by isolated Langerhans islets, 155–157
Globulin, thyroxine-binding, deficiency of, 260–262

Glucagon
affecting fructose metabolism, 305–307
affecting glucose turnover, 631–636
free fatty acids affecting plasma concentrations, 301–304
Glucogenic enzymes in liver, endotoxin affecting, 606–611
Glucose
affecting cultures of fetal pancreas, 638–643
affecting urea synthesis in liver, 158–166
blood levels
chromium intake affecting, 114–124, 439–442
in early latent diabetes, 928–934
oral contraceptives affecting, 443–455, 496–501
exercise affecting uptake of, 84–95
and growth hormone activity
and acromegaly diagnosis, 1–8
in fasting state, 174–179
in hypopituitary dwarfs, 74–82
and plasma FFA levels, 485–490
in pregnancy, 54–60
response to carbohydrate and protein feeding, 901–907
hepatic, and hepatic a-glycerophosphate, 776–784
homeostasis in fasting, cortisol affecting, 644–651
hyperglycemia
chromium supplements affecting, 439-442
and keto-acidosis and coma in hyperthyroidism, 893–895
hypoglycemia
from alcohol, in obesity, 977–986
growth hormone responses to, in pregnancy, 54–60
with hyperinsulinism after myocardial infarction, 999–1003
self-induced, in diabetes, 923–927
hypoglycemic effects of acetohexamide, 218–225, 309–315, 669–678
ketone acids affecting levels of, 877–883
lipolytic action of, 708–715
mannoheptulose affecting phosphorylation of, 126–131
oscillations in levels of, 1119–1121
oxidation by isolated Langerhans islets, 155–157
response to 3′,5′-AMP, 34–44
response to carbohydrate and protein feeding, 901–907
tolerance
coffee ingestion affecting, 916–921
in elderly subjects, oral chromium affecting, 114–124
and pyruvate levels in obesity, 690–699
after recovery from kwashiorkor, 1073–1082
in rheumatoid arthritis, corticosteroids affecting, 730–737
turnover after epinephrine and glucagon injections, 631–636
utilization by liver, in fasting, 833–836
α-Glycerophosphate, hepatic, and hepatic glucose formation, 776–784
Glycogen, adrenal levels after ACTH, 725–728
Goiter
combined therapy with three drugs, 317–324
iodine deficiency in Argentina, 326–333
Gonadotropin, inhibiting substance affecting ovarian histology, 181–187
Gout
diabetes with, acetohexamide in, 309–315
primary
hyperlipidemia in, 289–298
renal excretion of hydrogen in, 377–385
Growth hormone
and glucose levels
and acromegaly diagnosis, 1–8
in fasting state, 174–179
in hypopituitary dwarfs, 74–82
and plasma FFA levels, 485–490
in pregnancies, 54–60
response to carbohydrate and protein feeding, 901–907
isolated deficiency, 1005–1017
and plasma FFA levels, 485–490, 1030–1035
response to, in sexual ateliotic dwarfs, 1012–1017
and serum phosphorus levels in acromegaly, 966–975
vasopressin affecting levels of, 1019–1023

Heart
arteriosclerotic disease, clofibrate in, 461–466
2,4-dinitrophenol affecting myocardial metabolism, 370–376
hyperinsulinism with hypoglycemia, after myocardial infarction, 999–1003
norepinephrine affecting, and thyroid function, 740–746

Hemochromatosis, idiopathic, radioiron absorption in, 885–892
Heparin, inhibiting adrenal steroid metabolism, 352–358
Homocystinuria, pyridoxine in, 794–795
Hydrogen, renal excretion of, in gout, 377–385
β-Hydroxybutyrate, affecting adipose tissue, 877–883
Hydroxyhexamide, uricosuric and hypoglycemic properties of, 309–315
Hydroxyproline
  excretion in starvation, 345–350
  renal tubular transport of peptide, 20–32
Hypothalamus
  and feeding behavior, 535–541
  and pituitary-adrenal function in thyroid disorders, 263–269
Hypoxanthine guanine phosphoribosyl transferase, deficiency of, 846–852

Immune mechanisms, in adrenal insufficiency, 717–724
Immunoreactive insulin
  half-life of, 1025–1029
  in plasma, starvation affecting, 528–533
Infections, blood pyruvate and lactate in, 943–949
Insulin
  affecting lipid metabolism, 246–256
  affecting urea formation in liver, 246–256
  corticosteroids affecting secretion of, 730–737
  dosage after pituitary surgery in diabetes, 953–963
  factitious hypoglycemia from, 923–927
  and fatty acid oxidation by liver, 818–823
  free fatty acids affecting serum levels of, 301–304
  half-life of immunoreactive insulin, 1025–1029
  hyperinsulinism with hypoglycemia, after myocardial infarction, 999–1003
  levels affected by medium chain triglycerides, 796–800
  levels in early latent diabetes, 928–934
  mannoheptulose affecting secretion by Langerhans islets, 126–131
  oral contraceptives affecting plasma levels of, 443–455, 496–501
  output in urine, variations of, 139–145
  release by fetal pancreas explants, glucose affecting, 638–643
  response to carbohydrate and protein feeding, 901–907
  and salicylate action, 212–217
  secretion in obesity, 802–806
  secretion in sexual ateliotic dwarfism, 1005–1011
  utilization of chains A and B, 411–418
Insulin-like activity in serum, starvation affecting, 528–533
Intestines, absorption of amino acids in scurvy, 386–389
Iodide excess, affecting thyroxine metabolism, 612–618
Iodine
  deficiency in Argentina, 326–333
  metabolism in asymptomatic thyroiditis, 1064–1071
  radioactive, absorption in idiopathic hemochromatosis, 885–892
Isothiocyanates, antithyroid activity of, in vitro, 596–604

Ketone acids, affecting adipose tissue, 877–883
Ketone levels in fasting, cortisol affecting, 644–651
Kidney
  diuretics affecting, 420–428, 867–875
  hemodynamics in sodium deprivation, 10–18
  hydrogen excretion in gout, 377–385
  protein metabolism in nephrotic syndromes, 336–343
  tubular transport of hydroxyproline peptides, 20–32
  uric acid excretion in chronic disease, 430–436
Kwashiorkor, glucose and starch tolerance after recovery from, 1073–1082

Lactate
  affecting urea synthesis in liver, 158–166
  blood levels
    in febrile human infections, 943–949
    responses to fructose and glucagon, 305–307
  efficacy of isomers in acidosis, 168–172
Langerhans islets, insulin secretion by, mannoheptulose affecting, 126–131
Lipids
  hyperlipidemia in primary gout, 289–298
  insulin affecting metabolism of, in liver, 246–256
  metabolism disorders, oxandrolone in, 400–409

plasma levels
brain stimulation affecting, 535–541
clofibrate affecting, 458–459
egg yolk affecting, 1129–1138
in tissue and serum, in fasting, CPIB affecting, 681–688
very low density lipoproteins, triglycerides of, 544–553
Lipocytes, factors affecting c-AMP formation by, 653–667
Lipogenesis in adipose tissue, after refeeding, 825–831
Lipolytic action, of fructose-1-6-diphosphate, 708–715
Lipoprotein lipase activity, and serum triglyceride levels, 838–843
Lipoproteins. *See* Lipids
Liver
ALA synthetase activity in porphyria, 571–580
alcohol dehydrogenase in, sex differences in activity of, 1037–1042
and arachidonic acid synthesis, 1043–1049
bromsulphalein retention and plasma volume changes, in fasting, 522–526
fatty acid oxidation by, insulin affecting, 818–823
glucogenic enzymes in, endotoxin affecting, 606–611
glucose formation in, and hepatic a-glycerophosphate, 776–784
glucose utilization by, in fasting, 833–836
insulin levels in cirrhosis, affected by medium chain triglycerides, 796–800
lipid metabolism in, triamcinolone affecting, 751–762
neural control of function, 535–541
urea synthesis in
insulin affecting, 246–256
pyruvate affecting, 158–166

Magnesium, diuretics affecting excretion of, 420–428, 867–875
Malonate, affecting urea synthesis in liver, 158–166
Mannoheptulose, affecting glucose phosphorylation, 126–131
Mannose, oxidation by isolated Langerhans islets, 155–157
Mestranol, affecting carbohydrate metabolism, 443–455, 496–501
Methopyrapone infusion, affecting plasma corticosteroids, 263–269
5-Methylpyrazole-3-carboxylic acid, affecting lipolysis after growth hormone, 485–490
MK 870, renal effects of, 420–428
Muscle
cellular pH and potassium movement in acidosis, 563–569
cold affecting potentials and electrolytes of, 1094–1102
dystrophy, creatine phosphokinase levels in, 808–815
induced myotonia, 555–559
mass determination, 1104–1108
Mustard oils, antithyroid activity of, invitro, 596–604
Myocardial infarction, and hyperinsulinism with hypoglycemia, 999–1003
Myocardial metabolism, 2,4-dinitrophenol affecting, 370–376
Myotonia
dystrophica, creatine phosphokinase levels in, 808–815
induced, 555–559
Myxedema, blood-brain barrier in, 786–792

Nephrotic syndromes, renal metabolism of protein in, 336–343
Neural control of liver function, 535–541
Neuropathy, diabetic
clofibrate in, 466–468
gastric, 199–210
Nitrogen balance
altitude affecting, 360–364
in starvation, 391–399
Norepinephrine, effects on heart, and thyroid function, 740–746
Norethynodrel, affecting carbohydrate metabolism, 443–455, 496–501
Nutritional status. *See* Diet

Obesity
adipose tissue growth after refeeding, 825–831
alcohol hypoglycemia in, 977–986
fasting in. *See* Fasting
fatty acids in adipose tissue, 502–514
and free fatty acid oxidation, 62–72
and free fatty acids in plasma triglycerides, 515–520
glucose tolerance tests in, and blood pyruvate levels, 690–699
insulin secretion in, 802–806
ketone acids affecting adipose tissue, 877–883

triglyceride and FFA turnover in, 1122–1127
Octanoic acid
affecting insulin secretion, 796–800
affecting urea synthesis in liver, 158–166
Ornithine, puruvate affecting, 162–163
Oscillations in blood glucose levels, 1119–1121
Osteogenesis imperfecta, proline tolerance in, 46–52
Ouabain, ATPase response to, 555–559
Ovary
autopsy studies in diabetes, 896–900
estrogen synthesis in, clomiphene affecting, 189–197
gonadotropin inhibiting substance affecting, 181–187
Ovulatory suppressants, affecting carbohydrate metabolism, 443–455, 496–501
Oxandrolone, affecting plasma lipids, 400–409
Oxidation
of free fatty acids, 62–72
of sugars by isolated Langerhans islets, 155–157

Palmitate, radioactive, in liver studies, 818–823
Pancreas
autopsy studies in diabetes, 896–900
fetal, organ cultures of, 638–643
Parathyroid
autopsy studies in diabetes, 896–900
hyperparathyroidism with hyperthyroidism, 854–865
Peptides
diabetogenic, from animal adenohypophysis, 475–484
hydroxyproline, renal tubular transport of, 20–32
Periodate-treated ACTH, as antigen, 280–288
pH
intracellular changes in protein and potassium deficiency, 1084–1092
muscle cell, and potassium movement in acidosis, 563–569
Phosphate, diuretics affecting renal excretion of, 420–428, 867–875
Phospholipids
in aortas of rabbits, 1051–1057
oxandrolone affecting levels of, 403
Phosphoribosyl pyrophosphate amidotransferase, in purine metabolism, 846–847
Phosphorus levels, in acromegaly, 966–975
Phosphorylase, ACTH affecting, and adrenal glycogen content, 725–728
Pituitary
ablation in diabetic retinopathy, 953–963
affecting glucose and FFA response to growth hormone, 174–179
autopsy studies in diabetes, 896–900
carbohydrate metabolism in hypopituitary dwarfs, growth hormone affecting, 74–82
diabetogenic polypeptide from animal adenohypophysis, 475–484
growth hormone affecting plasma FFA after hypophysectomy, 1030–1035
and hypothalamic-adrenal function, in thyroid disorders, 263–269
Porphyria, diet affecting, 571–580
Potassium
deficiency of, intracellular pH changes in, 1084–1092
losses in starvation, 391–399
transport of, and muscle cell pH in acidosis, 563–569
Prednisolone, with desiccated thyroid, in chronic thyroiditis, 317–324
Pregnancy, and growth hormone response to hypoglycemia, 54–60
Proline, in osteogenesis imperfecta, 46–52
Protein
altitude affecting metabolism of, 360–364
in blood and spinal fluid, in myxedema, 786–793
cortisol affecting catabolism of, in fasting, 644–651
deficiency of, intracellular pH changes in, 1084–1092
insulin chains incorporated in, 411–418
plasma insulin and growth hormone response to feeding, 901–907
renal metabolism in nephrotic syndromes, 336–343
serum levels, oxandrolone affecting, 404–405
Pyrazole derivative, affecting lipolysis after growth hormone, 485–490
Pyridoxine, in homocystinuria, 794–795
Pyruvate
affecting urea synthesis in liver, 158–166
blood levels
in febrile human infections, 943–949
and glucose tolerance tests in obesity, 690–699
responses to fructose and glucagon, 305–307
Renin, plasma, in sodium deprivation, 10–18

Retinopathy, diabetic, pituitary ablation in, 953–963
Rheumatoid arthritis, glucose tolerance in, corticosteroids affecting, 730–737
Rickets, vitamin D-resistant, and fibrous dysplasia of bone, 988–997

Salicylates, insulin affecting action of, 212–217
Scurvy, intestinal absorption of amino acids in, 386–389
Sex differences, in alcohol dehydrogenase activity in liver, 1037–1042
Sexual ateliotic dwarfism
  insulin secretion in, 1005–1011
  and response to growth hormone, 1012–1017
SK&F-12185, in Cushing's syndrome with adrenocortical carcinoma, 936–941
Sludging of blood, clofibrate affecting, 459–460
Social Security disability program, 1059–1063
Sodium
  dietary, and blood volume changes in fasting, 133–138
  diuretic affecting renal excretion of, 420–428
  responses to low sodium diet, 10–18
Starch tolerance, after recovery from kwashiorkor, 1073–1082
Starvation. *See* Fasting
Stomach, gastric neuropathy in diabetes, 199–210
Succinate, affecting urea synthesis in liver, 158–166
Sugars, oxidation by isolated Langerhans islets, 155–157

Temperature, cold, affecting muscle potentials and electrolytes, 1094–1102
Tendon xanthomas, with hypercholesterolemia, clofibrate in, 470–472
Testis, autopsy studies in diabetes, 896–900
Thiadiazoles, affecting uric acid levels, 846–852
Thiazides, renal effects of, 420–428, 867–875
Thyroid
  antithyroid activity of isothiocyanates in vitro, 596–604
  autopsy studies in diabetes, 896–900
  cold nodules, diiodotyrosine dehalogenating activity in, 271–278
  combined therapy with three drugs, in goiter, 317–324
  effects of thyroid hormones in euthyroid patients, 97–104
  functional status, and norepinephrine effects on heart, 740–746
  hyperthyroidism
    hyperglycemia, ketoacidosis and coma in, 893–895
    hyperparathyroidism with, 854–865
  hypothalamic-pituitary-adrenal function in disorders of, 263–269
    blood-brain barrier in, 786–792
    calcium infusion in, 747–749
    diabetes with, 108–112
  iodine deficiency in Argentina, 326–333
Thyroid-stimulating hormone, mechanism of action, 226–241
Thyroiditis
  asymptomatic, iodine metabolism in, 1064–1071
  chronic, combined therapy with three drugs, 317–324
Thyroxine
  -binding globulin deficiency, familial, 260–262
  chlorophenoxyisobutyrate affecting, 909–914
  excess iodide affecting metabolism of, 612–618
Tolbutamide, compared with acetohexamide, 218–225
Triamcinolone, affecting lipid metabolism in liver, 751–762
Triglycerides
  medium chain, affecting insulin levels, 796–800
  serum levels
    affected by lipoprotein lipase, 838–843
    and free fatty acids, 515–520
    oxandrolone affecting, 403
  turnover in obesity, 1122–1127
  of very low density lipoproteins, 544–553

Urea synthesis in liver
  insulin affecting, 246–256
  pyruvate affecting, 158–166
  triamcinolone affecting, 751–762
Uric acid
  acetohexamide affecting, 309–315
  2-ethylamino-1,3,4-thiadiazole affecting, 846–852
  excretion in chronic renal disease, 430–436

metabolism in Down's syndrome, 560–561
Urine
hydrogen excretion in gout, 377–385
hydroxyproline excretion, 20–32, 345–350
insulin output in, variations of, 139–145
uric acid excretion in chronic renal disease, 430–436

Vasopressin, affecting growth hormone, 1019–1023
Virus-induced diabetes, 1154–1158
Vision, after pituitary ablation in diabetes, 953–963
Vitamin D-resistant rickets, and fibrous dysplasia of bone, 988–997

Weight loss in obesity. *See* Fasting

Xanthomas, tendon, with hypercholesterolemia, clofibrate in, 470–472

REFERENCES*

Lists of references cited in medical text are often in error; yet, many readers judge an article largely by the accuracy with which such material was originally prepared in manuscript and checked in proof. METABOLISM hopes that observance of the following *notes to authors* will result in more accurate bibliographic information, presented in a consistent style.

Type bibliographies double-spaced under the heading, REFERENCES. See examples below. Note use of the paragraph indentation. Do not underline or use all-capitals.

References should be compiled numerically according to the order of citation in the text.

Use initials for the names of cited authors rather than full first names (although full first names of female authors may be used). The abbreviation, "et al.," is permitted in text but not in lists of references.

Abbreviations for titles of medical periodicals should conform to those used in *Index Medicus.* (A "List of Journals Indexed in Index Medicus"–with abbreviations–is obtainable from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402, at 75 cents.) Note that METABOLISM uses periods for such abbreviations.

Abbreviate book publishers' names by elimination of their initials and such designations as "Company, Inc., Bros., Ltd."

Foreign-language titles of cited books and articles should be given in the original language, followed by a precise English translation in parentheses. Pay particular attention to proper use of accents, capitalization of German nouns, and similar conventions. If the original language uses other than the Roman alphabet, simply give the title in English, followed by a parenthetical note — e.g., (in Russian).

Note that the bibliographic references should be *complete,* as exemplified below. Note the *order* of material, style of *punctuation* and the *different use of capital letters* for book and journal literature; also Ed. (editor) vs. ed. (edition), etc.

Before submitting the manuscript for publication, check bibliographic numbers and the spelling of authors' names in the *text* against their form in the *References.*

EXAMPLES

BOOK (note also handling of "edition" and, *only if necessary,* of exact page citation):

1. Allen, A. C.: The Kidney—Medical and Surgical Diseases (ed. 2). New York, Grune & Stratton, 1962, p. 147.

JOURNAL ARTICLE (note handling of multiple authorship; also use of first page of article only, *not* inclusive pages):

2. Plante, G. E., Durivage, J., and Lemieux, G.: Renal excretion of hydrogen in primary gout. Metabolism 17:377, 1968.

CONTRIBUTION TO BOOK (note also handling of "Editors" and "Volume"):

3. Luetscher, J. A., and Cheville, R. A.: Measurement of secretion rates of adrenal cortical hormones. In: Astwood, E. B., and Cassidy, C. E. (Eds.): Clinical Endocrinology, Vol. II. New York, Grune & Stratton, 1968.

*Reprints of this sheet are available without cost from the Editor in Chief or the publisher.